

FULL TEXT OF CASES (USPQ2D)

All Other Cases

In re Glaug, 62 USPQ2d 1151 (CA FC 2002)

62 USPQ2D 1151

In re Glaug

U.S. Court of Appeals Federal Circuit

No. 00-1571

Decided March 15, 2002

Headnotes

PATENTS

[1] Patentability/Validity — Obviousness — Relevant prior art — Particular inventions (§115.0903.03)

Patent construction — Claims — Defining terms (§125.1305)

General term used to introduce concept that is further defined more narrowly must be understood in context in which inventor presents it; in present case, use of term “intermittent” in specification of prior patent for disposable training pants does not suggest use of zones entirely free of adhesive holding elastic to fabric required by claims of application at issue, since specification of prior patent makes clear that process claimed therein requires broad contact between elastic and adhesive, with illustrations of continuous zones of adhesive that fix fabric to elastic, whereas applicant's specification uses “intermittent” to designate only distinct zones of adhesive spaced apart by zones free of

adhesive.

[2] Patentability/Validity — Obviousness — Evidence of (§115.0906)

Comparative data in specification of application for method of making disposable training pants, showing that elastic in pants made by claimed process exhibited less than ha decay in elasticity as compared to seven commercial brands of training pants, are relevant evidence of non-obviousness, since data are offered as being illustrative of advantageous property of training pants made by claimed process as measured by rate of elastic decay; although measurement of physical property may not of itself impart patentability to otherwise unpatentable claims, measurement that serves to point up distinction from prior art, or advantages over prior art, is relevant to patentability.

[3] Patentability/Validity — Obviousness — Evidence of (§115.0906)

Inventor's explanation of how claimed invention works does not render obvious that which is otherwise unobvious; in present case, prior art does not show use of spaced zones o adhesive holding elastic to fabric claimed in application for method of making disposable training pants, and applicant's teaching that use of such spaced zones permits fabric to bunch and stretch therefore is not evidence of obviousness, and if anything, supports unobviousness of discovery that spacing adhesive reduces elastic decay.

Case History and Disposition

Appeal from the U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences.

Patent application of Frank S. Glaug and Margaret A. Kato (serial no. 08/455,374). Applicants appeal from decision upholding patent examiner's rejection of all claims in application. Reversed.

Attorneys:

Meredith Martin Addy, Robert N. Carpenter, and Henry L. Brinks, of Brinks, Hofer, Gilson & Lione, Chicago, Ill., for appellants.

Linda Moncys Isacson, associate solicitor; John M. Whealan, solicitor; Mary Critharis, associate solicitor, U.S. Patent and Trademark Office, Arlington, Va., for appellee.

Judge:

Before Mayer, chief judge, and Newman and Michel, circuit judges.

Opinion Text

Opinion By:
Newman, J.

Frank S. Glaug and Margaret A. Kato (herein “Glaug”) appeal the decision of the Board of Patent Appeals and Interferences of the United States Patent and Trademark Office, rejecting all of the claims of patent application Serial No. 08/455,374 entitled “Process for Making a Training Pant Having a Unitary Waist Elastic System.” The Board's decision is reversed.

The Glaug invention is a method of making disposable training pants. The pants are described as providing a more comfortable fit over a wider weight and size range as well as a longer useful life, as compared with known training pants, because the elasticity at the waist is preserved over a longer period of repeated cycles of elastic extension and contraction, such as when the child lowers and raises the pants. These benefits result from the manner in which the elastic is adhered at the waist,

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achieved by placing the adhesive that holds the elastic in spaced zones so that there are zones wherein the fabric unadhered between the adhesive zones, and folding the edge of the fabric over the elastic. Claim 1, the broadest claim, is representative. Emphases have been added to the features asserted by Glaug to provide distinction from prior art processes:

1. A process having a machine direction and a cross direction for making disposable absorbent articles, comprising the steps of:
 - [a] continuously moving a base layer generally in a machine direction, the base layer comprising opposite edge portions generally extending in the machine direction,
 - [b] providing a plurality of absorbent structures having respective length dimensions greater than respective width dimensions,
 - [c] positioning the absorbent structure at spaced apart locations between the opposite edge portions of the base layer, such that the length dimensions of the absorbent structure are generally transverse to the machine direction,
 - [d] applying an adhesive, generally in the machine direction, at *selected spaced apart zones of each edge portion, the zones of each edge portion being spaced apart in the machine direction*,
 - [e] continuously delivering an elastic member generally in the machine direction onto each edge portion,
 - [f] *folding each edge portion, generally in a cross direction, over the respective elastic member*,
 - [g] joining together each folded edge portion and the elastic member,
 - [h] folding the continuously moving base layer along a fold line generally parallel to the machine direction, and
 - [i] forming a plurality of disposable absorbent articles having a respective plurality of closed-loop waist-elastic systems in which each waist elastic system has an *average maximum magnitude of decay less than about 66.67 grams in an extension range of about 175 millimeters to about 300 millimeters over the first three cycles*. The placement of the adhesive is illustrated in the following diagram of the construction process:

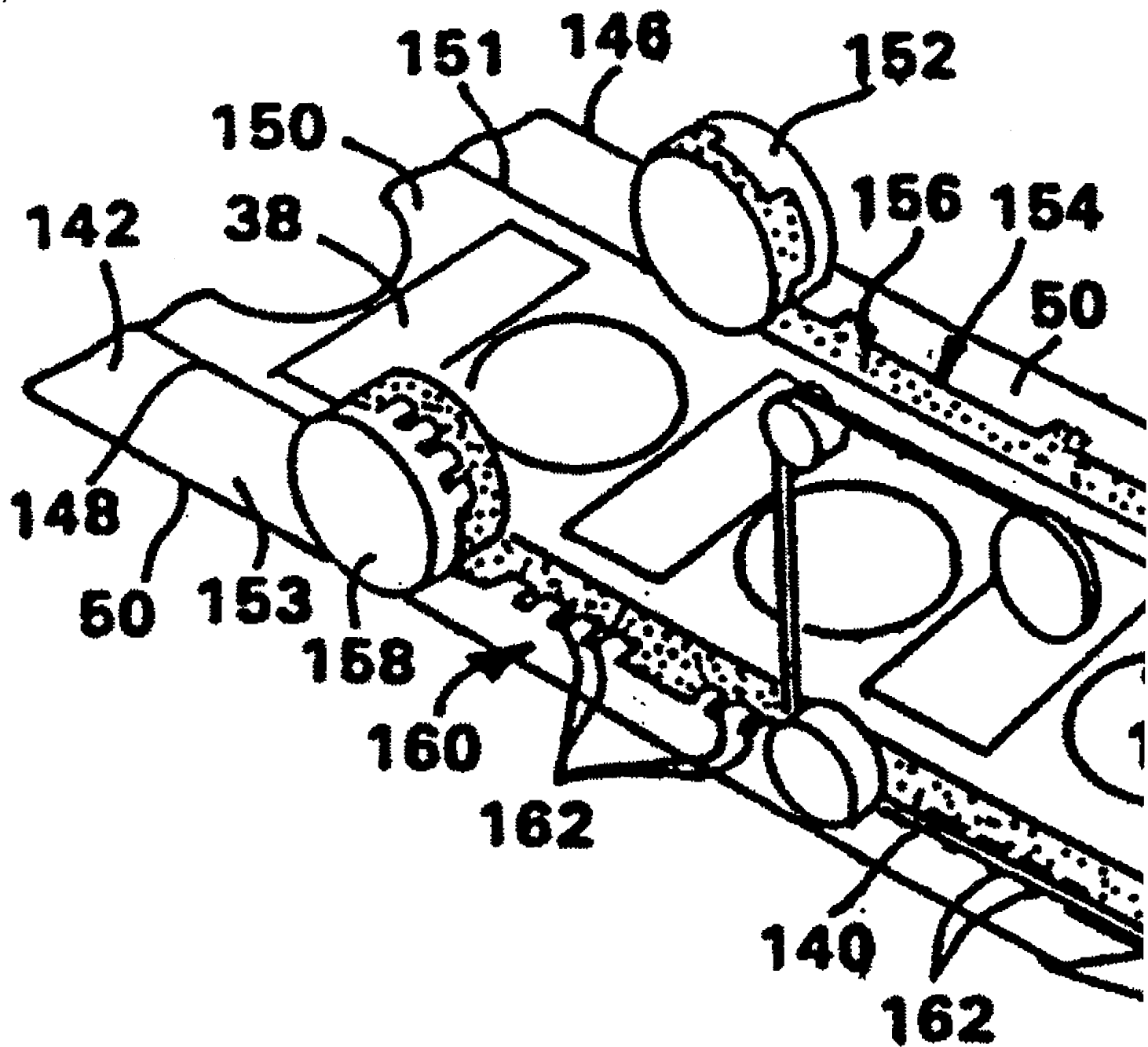


Figure 4 shows a process for making one embodiment of the pant. As base layer 142 is continuously moved through the machine, absorbent structures 38 are attached and leg openings 116 are cut. To form the waist elastic system, adhesive is applied by means of patterned adhesive rolls 152 and 158. Glaug explains that different adhesive patterns are shown on rolls 152 and 158 to illustrate different possible patterns, but that generally the patterns are the same on both sides of the base layer. The adhesive 154 is thus applied in a pattern, which include a plurality of distinct adhesive zones 156 and 162 which are spaced apart from one another. An elongate elastic member 140 is joined to the adhesive zones 156 and 162. The remaining adhesive, as at 154, serves to join the folded-over edge of the base layer 142 after it passes folding boards 164. The structure is then folded down its center, cut at the leg openings, and sealed to form pants.

The PTO Proceedings

During patent examination the PTO bears the initial burden of presenting a *prima facie* case of unpatentability. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472 223 USPQ 785, 788 (Fed. Cir. 1984). If the PTO fails to meet this burden, then the applicant is entitled to the patent. However, when a *prima facie* case is made, the burden shifts to the applicant to come forward with evidence and/or argument supporting patentability. Patentability *vel non* is then determined on the entirety of the record, by a preponderance of evidence and weight of argument. *Id.* As discussed in *In re Rinehart*, 531 F.2d 1048, 1052,

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189 USPQ 143, 147 (CCPA 1976), the *prima facie* case is not a stone wall against which rebuttal evidence is tested; patentability is determined by a preponderance of all the evidence. We review the Board's decision on the record, in accordance with the appellate criteria of the Administrative Procedure Act, 5 U.S.C. §706. *See Dickinson v. Zurko*, 527 U.S. 150, 50 USPQ2d 1930 (1999).

The examiner rejected all of the claims on the ground of obviousness, based on United States Patent No. 5,147,487 (Nomura) in view of United States Patent No. 3,225,765 (Magid). Both references relate to disposable baby pants. The Nomura reference shows a method having the steps of Glaug's claim 1 except for those shown *supra* in bold face [italics]. Magid shows a fold or hem of fabric over the elastic at the waist and legs of baby pants. The Board found that Nomura suggested "intermittent" spacing of the adhesive for the elastic waist, that the numerical magnitude of elastic decay as stated in claim 1 is inherent in the Glaug structure and thus not of patentable significance, and that it would have been obvious to place the Magid hem over the Nomura elastic. The Board held that a *prima facie* case of obviousness was made, and that Glaug's evidence of superior results was inadequate to rebut that conclusion.

Claim Clause [d] - The Spaced Apart Adhesive Zones

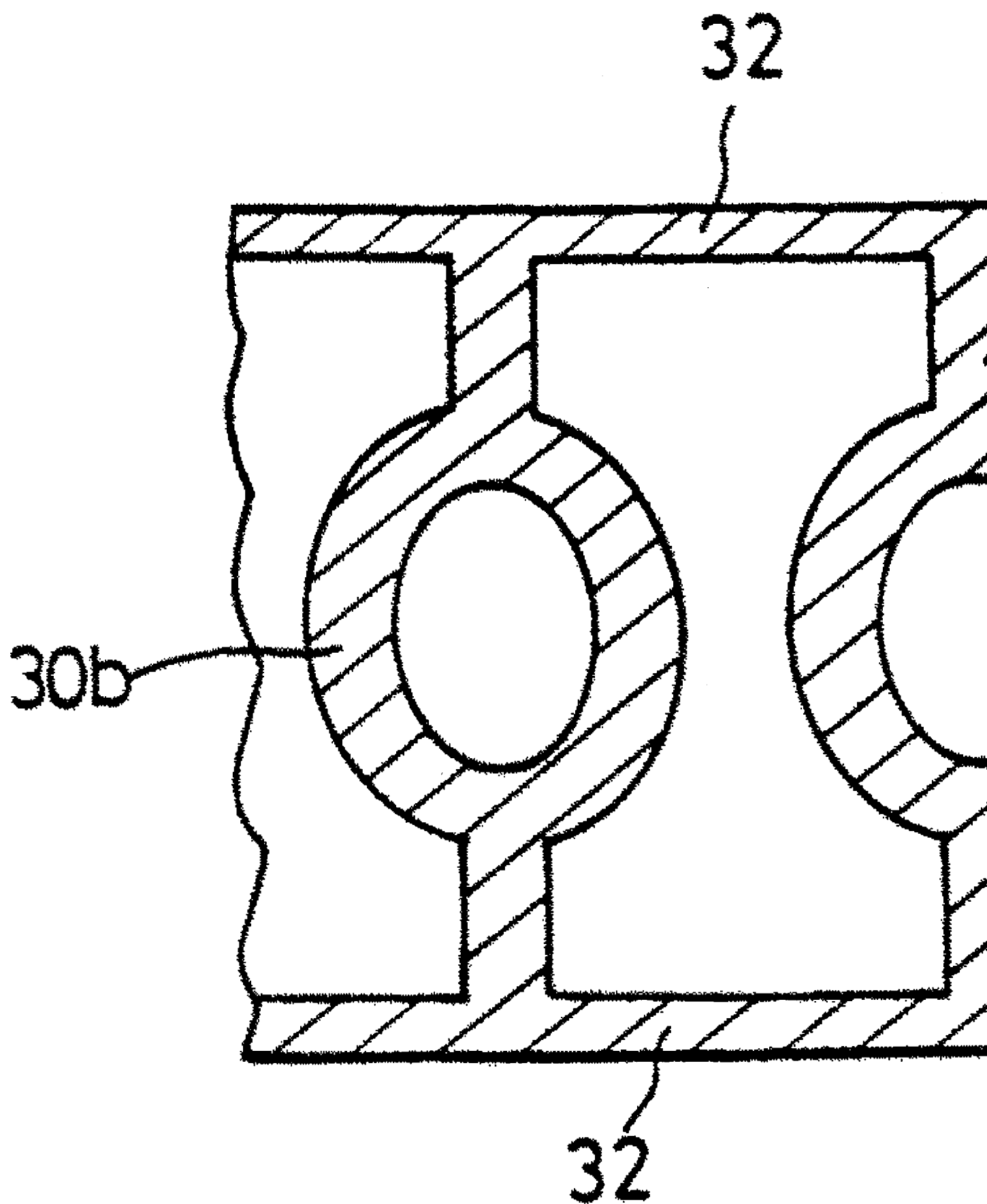
Claim clause [d] states that the adhesive is applied "generally in the machine direction" in "zones" that are "spaced apart." The specification explains that the adhesive may be placed only on the seams with the elastic secured when the halves of the folded-over pant are joined together, or may be spaced more closely along the elastic with as little as half-inch gaps between zones of adhesive. Nomura describes and illustrates, in the preferred embodiments, applying the adhesive to the pant edges in a continuous film. Nomura also states that "the adhesive zones may be applied with adhesive continuously extending overall on these zones, or in a plurality of dots, intermittent lines, or helical lines."

The Board held that this was a *prima facie* teaching of Glaug's "spaced apart" adhesive zones, in that Glaug's

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placement of adhesive in zones is taught by or would have been obvious from the Nomura reference. The Board pointed out that both Nomura and Glaug use the word “intermittent” in describing the adhesive.

Glaug argues that Nomura's illustrations do not show intermittent zones of adhesive, and that the only usage of “intermittent” by Nomura is in one broad catch-all sentence at the end of the description. Glaug argues that Nomura clearly did not contemplate spaced zone-type gaps in the adhesive placement in the machine direction. Glaug points to the following illustration from Nomura, and argues that Nomura does not show adhesive placed in zones that are separated by adhesive-free zones:



In Nomura, the pants are formed by spreading adhesive upon a continuous web 26, formed of fibrous non-woven fabric, introducing elastic members (not shown) and bonding the arrangement to another continuous web, sandwiching absorbent material within. The diagram reproduced shows the placement of adhesive at 30b around the leg openings, at 32 along the waist, and at 31 extending from opposite sides of adhesive 30b to the adjacent lateral edges of the web 26.

Glaug also points out that Nomura adheres the elastic in an entirely different way from the Glaug process: Nomura stretches the elastic, and applies the adhesive to the fabric in a broad band in order to hold the elastic in the stretched position during the manufacturing process. Glaug points out that the Nomura adhesive must be placed so that it provides a large surface area and continuous attachment between the elastic and the fabric. In contrast, the Glaug specification is explicit that the adhesive is applied so as to reduce the area of attachment between the elastic and the fabric, so that zones of fabric are not adhered to the

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elastic and can bunch or stretch between the points of adhesion.

[1] Glaug is correct that the Nomura usage of “intermittent” does not suggest the presence of zones entirely free of adhesive and disposed generally in the machine direction. Nomura's specification makes clear that his process requires broad contact between the elastic and the adhesive, with illustrations of continuous zones of adhesive that fix the fabric to the stretch elastic. In contrast, Glaug's specification uses “intermittent” to designate only distinct zones of adhesive spaced apart by zones free of adhesive. Typical descriptions from Glaug's specification are:

The intermittent pattern of joining is a pattern of 1.27 centimeter (0.5 inch) wide adhesive zones separated by 1.27 centimeter wide zones with no adhesive. [Application p. 31.]

[P]ulsed adhesive system 90 can apply an adhesive pattern such as an adhesive zone 92 (Fig. 5) having a window 93 that is void of adhesive. [Application p. 42.]

Adhesive pattern 154 includes a plurality of distinct adhesive zones 156 which are spaced apart from one another, i.e., intermittently applied, in the machine direction 144. [Application pp. 48-49.]

Patterned adhesive roll 158 applies an optional adhesive pattern 160 having a plurality of spaced-apart distinct adhesive zones 162. [Application p. 49.] The Solicitor cites Glaug's statement that the adhesive roll applies adhesive “intermittently ... in [the] machine direction [to include] a plurality of distinct adhesive zones 156 which are spaced apart from one another, i.e., intermittently applied,” as showing that Glaug himself taught that “spaced apart” and “intermittent” have the same meaning. Glaug responds that his meaning of “intermittent” is described in the specification, which defines what Glaug meant. Glaug states that “intermittent,” in his method means that the adhesive zones are separated by zones of no adhesive, and thus is distinguished from overlapping strips of adhesive as found in Nomura. Although the Solicitor states that “Nomura expressly teaches ‘applying an adhesive’ in ‘spaced apart zones,’” PTO brief at 14, these words are quoted from Glaug, not Nomura.

It is well established that when a general term is used to introduce a concept that is further defined more narrowly, the general term must be understood in the context in which the inventor presents it. *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477, 45 USPQ2d 1429, 1432 (Fed. Cir. 1998) (“This rule of construction recognizes that the inventor may have imparted a special meaning to a term in order to convey a character or property or nuance relevant to the particular invention.”) The word “intermittent” is susceptible of various meanings, and the inventor's lexicography must prevail, *Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 1388, 21 USPQ2d 1383, 1387 (Fed. Cir. 1992); *Lear Siegler, Inc. v. Aeroquip Corp.*, 733 F.2d 881, 889, 22 USPQ 1025, 1031 (Fed. Cir. 1984).

The Solicitor states that Glaug did not argue before the Board that Nomura does not show “spaced apart zones,” and that Glaug must therefore be prohibited from raising this argument before the Federal Circuit. Glaug responds, and the record shows, that he argued to the Board that “the references teach different structures.” The issue of the adhesive structure was before the Board, whose familiarity with the content of the application and the references on which it relies may be assumed by the patent applicant, and need not be repeated as if on appeal to a non-technical court. An applicant's arguments to the PTO examiner and Board are not normally presented in the identical phrases and elaborative lengths that are usually needed in an appeal to the court. It is apparent that the different structures of Glaug's invention and those of the Nomura reference were at issue and were argued before the Board. We thus agree with Glaug that the Nomura reference does not present a *prima facie* case of obviousness of the placement of the adhesive in Glaug's process.

Claim Clause [i] - The Decay Parameters

[2] Glaug tabulated, in his specification, comparative data of elastic decay using his system of adhesive zones, as compared with seven commercial brands of training pants. These data showed that the elastic in the pants made by his process exhibited less than half the decay in elasticity, compared with the best of seven commercial brands of training pants. The Board rejected this evidence because

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Glaug did not describe how the elastic waist was constructed in these prior art pants. The Solicitor argues that these comparative data are not of sufficient quality to overcome the *prima facie* case of obviousness made by the prior art. On its face, Glaug's data show improvement over these commercial products. These data, included in the specification, are not offered as rebuttal evidence, but as illustrative of an advantageous property of Glaug's training pant as measured by the rate of elastic decay.

Nomura does not suggest that elastic decay would be reduced by spaced placement of the adhesive to provide adhesive-free zones. Thus, Glaug argues, the claim limitation “in which each waist elastic system has an average maximum magnitude of decay less than about 66.67 grams in an extension range of about 175 millimeters to about 300 millimeters over the first three cycles” is neither taught nor suggested by Nomura.

The Board held that the numerical measure of elastic decay in the Glaug claims is simply inherent in any improvement achieved by Glaug through the placement of his adhesive, and does not impart patentability to the claims. While the measurement of a physical property may not of itself impart patentability to otherwise unpatentable claims, when the measured property serves to point up the distinction from the prior art, or advantages over the prior art, that property is relevant to patentability, and its numerical parameters can not only add precision to the claims but also may be considered, along with all of the evidence, in determination of patentability. *See Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1216, 36 USPQ2d 1225, 1228 (Fed. Cir. 1995) (affirming the district court's definition of “skinless” as a performance characteristic in accordance with the measurements of bubble point, flow time, and KL curve); *In re Soni*, 54 F.3d 746, 750, 34 USPQ2d 1684, 1687 (Fed. Cir. 1995) (“One way for a patent applicant to rebut a *prima facie* case of obviousness is to make a showing of ‘unexpected results,’ i.e., to show that the claimed invention exhibits some superior property or advantage that person of ordinary skill in the relevant art would have found surprising or unexpected.”)

The Technical Explanation

Glaug explained in the specification that his use of spaced adhesive zones “reduc[es] the surface area of joint between the elastic member and the layer of material [with] a resultant reduction in the elastic member's loss of

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elasticity.”[Application, p.9] The Board stated, and the Solicitor argues, that Glaug's technical explanation of how his invention works establishes that any “intermittently spaced” adhesive would inherently achieve the benefits of the invention. The Board held that this renders the claims obvious because “according to appellants' above-quote disclosure, this reduction in the surface area of joinder would inherently cause a reduction in the loss of elasticity (decay) of the Nomura elastic members.” Bd. op. at 5. Glaug complains that the Board used Glaug's own explanation of his invention against him, instead of citing evidence from the prior art.

[3] An inventor's explanation of how the invention works does not render obvious that which is otherwise unobvious. Since the prior art does not show the spaced zones of adhesive that are provided by Glaug, his teaching that the spacing permits the fabric to bunch and stretch is not evidence of obviousness. If anything, this teaching supports the unobviousness of Glaug's discovery that spacing the adhesive reduces elastic decay so that the magnitude of decay is as stated in claim clause [i].

Conclusion

The material facts are generally undisputed. On the entirety of the record we conclude, as a matter of law, that the placement of the adhesive in spaced apart zones generally in the machine direction would not have been obvious in view of Nomura. *See Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467(1966) (obviousness a question of law based on underlying facts).

Claim Clause [f] - The Folded Edge Over the Elastic

The Magid reference describes a tubular edging of fabric on baby pants to reduce skin irritation. The Board found that this constitutes a folded “hem” which would obviously increase the strength of the edge, and ruled that would for this reason have been obvious to fold the edge over the elastic of the Glaug training pant.

Glaug states that increased strength of a hem is irrelevant to his process, and points out that Magid does not relate to the adhesive

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placement. In view of our conclusion that Glaug's adhesive placement establishes patentability of claim 1, we need not consider the effect of the Magid reference.

The decision of the Board is reversed.¹

REVERSED

Footnotes

¹ Glaug does not appeal the rejection of claims 12 to 25 for obviousness-type double patenting. That rejection is not affected by our decision.

- End of Case -

FULL TEXT OF CASES (USPQ2D)

All Other Cases

In re Rouffet (CA FC) 47 USPQ2d 1453 In re Rouffet

**U.S. Court of Appeals Federal Circuit
47 USPQ2d 1453**

Decided July 15, 1998

No. 97-1492

Headnotes

PATENTS

1. Patentability/Validity -- Obviousness -- Combining references (§ 115.0905)

Claimed low orbit satellite communications system for mobile terminals, which addresses problem of minimizing "handover" of receiver from beam footprint of one transmitting satellite to that of another through use of multiple fan-shaped beams, is not prima facie obvious over combination of three prior art references, since critical reference that teaches use of fan-shaped beam to transmit from ground station to orbiting satellites does not specifically address handover minimization, and to extent it addresses handover problem at all, does so with orb selection rather than beam shape, and since there is no reason one of ordinary skill in art, seeking to minimize handovers due to satellite motion, would have been motivated to combine this reference with remaining references in manner that would render claimed invention obvious.

2. Patentability/Validity -- Obviousness -- Person of ordinary skill in art (§ 115.0902)

Patentability/Validity -- Obviousness -- Combining references (§ 115.0905)

Three possible sources for motivation to combine prior art references in manner that would render claimed

invention obvious are nature of problem to be solved, teachings of prior art, and knowledge of persons of ordinary skill in art; high level of skill in field of art cannot be relied upon to provide necessary motivation absent explanation of what specific understanding or technical principle, within knowledge of ordinary skill in art, would have suggested combination, since, if such rote invocation could suffice to supply motivation to combine more sophisticated scientific fields would rarely, if ever, experience patentable technical advance.

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3. Patentability/Validity -- Obviousness -- Person of ordinary skill in art (§ 115.0902)

Patentability/Validity -- Obviousness -- Combining references (§ 115.0905)

Claimed low orbit satellite communications system for mobile terminals is not prima facie obvious over combination of two prior art references, even though person possessing high level of skill characteristic of this field would know to account for differences between claimed invention and prior art combination, since high level of skill in art, without more, cannot supply required motivation to combine references, and does not overcome absence of any actual suggestion to combine; obviousness rejection will not be upheld, even where skill in art is high, absent specific identification of principle, known to one of ordinary skill, that suggests claimed combination.

Case History and Disposition:

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Appeal from the U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences.

Patent application of Denis Rouffet, Yannick Tanguy, and Frederic Berthault, serial no 07/888,791, filed May 27, 1992. From decision upholding examiner's final rejection of application as obvious under 35 USC 103(a), applicants appeal. Reversed.

Attorneys:

Richard C. Turner and Grant K. Rowan, of Sughrue, Mion, Zinn, Macpeak & Seas, Washington, D.C., for appellants.

David J. Ball Jr., associate solicitor, Nancy J. Linck, solicitor, Albin F. Drost, deputy solicitor, Craig R. Kaufman, associate solicitor, and Scott A. Chambers, associate solicitor,

U.S. Patent and Trademark Office, Arlington, Va., for appellee.**Judge:**

Before Plager, circuit, judge, Archer, senior circuit judge, and Rader, circuit judge.

Opinion Text**Opinion By:**

Rader, J.

Denis Rouffet, Yannick Tanguy, and Frederic Berthault (collectively, Rouffet) submitted application 07/888,791 (the application) on May 27, 1992. The Board of Patent Appeals and Interferences (the Board) affirmed final rejection of the application as obvious under 35 U.S.C. Section 103(a). *See Ex parte Rouffet*, No. 96-1553 (Bd. Pat. App. & Int. Apr. 16, 1997). Because the Board reversibly erred in identifying a motivation to combine the references, this court reverses.

I.

Satellites in a geosynchronous or geostationary orbit remain over the same point on the Earth's surface. Their constant position above the Earth's surface facilitates communications. These satellites project a number of beam to the Earth. Each beam transmits to its area of coverage, or footprint, on the Earth's surface. In order to provide complete coverage, adjacent footprints overlap slightly and therefore must use different frequencies to avoid interference. However, two or more non-overlapping footprints can use the same set of frequencies in order to use efficiently the limited radio spectrum. Figure 1 from the application shows the coverage of a portion of the Earth surface provided by multiple cone shaped beams:



Frequency reuse techniques, however, have a limited ability to compensate for congestion in geostationary orbit. To alleviate the orbit congestion problem, new telecommunications systems use a network of satellites in low Earth orbit. When viewed from a fixed point on the Earth's surface, such satellites do not remain stationary but move overhead. A satellite's motion as it transmits a plurality of cone-shaped beams creates a new problem. The satellite's movement causes a receiver on the Earth's surface to move from the footprint of one beam into a second beam transmitted by the same satellite. Eventually, the satellite's motion causes the receiver to move from the footprint of a beam transmitted by one satellite into the footprint of a beam transmitted by a second satellite. Each switch from one footprint to another creates a "handover" event analogous to that which occurs when a traditional cellular phone travels from one cell to another. Handovers are undesirable because

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they can cause interruptions in signal transmission and reception.

Rouffet's application discloses technology to reduce the number of handovers between beams transmitted by the same satellite. In particular, Rouffet eliminates handovers caused solely by the satellite's motion. To accomplish this goal, Rouffet changes the shape of the beam transmitted by the satellite's antenna. Rouffet's satellites transmit fan-shaped beams. A fan beam has an elliptical footprint. Rouffet aligns the long axis of his beams parallel to the direction of the satellite's motion across the Earth's surface. By elongating the beam's footprint in the direction of satellite travel, Rouffet's invention ensures that a fixed point on the Earth's surface likely will remain within a

single footprint until it is necessary to switch to another satellite. Because Rouffet's invention does not address handovers caused by the motion of the receiver across the Earth's surface, his arrangement reduces, but does not eliminate, handovers. Figure 3 from the application shows the footprints 12 from six beams aligned in the direction of satellite motion 15:



The application contains ten claims that stand or fall as a group. Claim 1 is representative:

A low orbit satellite communications system for mobile terminals, wherein the communications antenna system each satellite provides isoflux coverage made up of a plurality of fan beams that are elongate in the travel direction of the satellite.

The examiner initially rejected Rouffet's claims as unpatentable over U.S. Pat. No. 5,199,672 (King) in view of U.S. Pat. No. 4,872,015 (Rosen) and a conference report entitled "A Novel Non-Geostationary Satellite Communications System," *Conference Record*, International Conference on Communications, 1981 (Ruddy). On appeal to the Board, the examiner added an alternative ground for rejection, holding that the claims were obvious over U.S. Pat. No. 5,394,561 (Freeburg) in view of U.S. Pat. No. 5,170,485 (Levine).

On April 16, 1997, the Board issued its decision. Because Rouffet had specified that the claims would stand or fall as a group based on the patentability of claim 1, the Board limited its opinion to that claim. The Board unanimously determined that the examiner had properly rejected claim 1 as obvious over King in view of Rosen and Ruddy. The Board, on a split vote, also affirmed the rejection over Freeburg in view of Levine.

II

To reject claims in an application under section 103, an examiner must show an un rebutted *prima facie* case of obviousness. See *In re Deuel*, 51 F.3d 1552, 1557, 34 USPQ2d 1210, 1214 (Fed. Cir. 1995). In the absence of a proper *prima facie* case of obviousness, an applicant who complies with the other statutory requirements is entitled to a patent. See *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness. See *id.*

While this court reviews the Board's determination in light of the entire record, an applicant may specifically challenge an obviousness rejection by showing that the Board reached an incorrect conclusion of obviousness or that the Board based its obviousness determination on incorrect factual predicates. This court reviews the ultimate determination of obviousness as a question of law. See *In re Lueders*, 111 F.3d 1569, 1571, 42 USPQ2d 1481, 1482 (Fed. Cir. 1997). The factual predicates underlying an obviousness determination include the scope and content of the prior art, the differences between the prior art and the claimed invention, and the level of ordinary skill in the art. See *Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 881, 45 USPQ2d 1977, 1981 (Fed. Cir. 1998). This court reviews the Board's factual findings for clear error. See *In re Zurko*, 142 F.3d 1447, 1449, 46 USPQ2d 1691, 1693 (Fed. Cir. 1998) (in banc); *Lueders*, 111 F.3d at 1571-72. "A finding is clearly erroneous when, although there is evidence to support it, the reviewing court on the entire evidence is left with the definite and firm conviction that a mistake has been committed." *In re Graves*, 69 F.3d 1147, 1151, 36 USPQ2d

1697, 1700 (Fed. Cir. 1995) (quoting *United States v. United States Gypsum Co.*, 333 U.S. 364, 395 [76 USPQ 430] (1948)).

The secondary considerations are also essential components of the obviousness determination. See *In re Emert*, 124 F.3d 1458, 1462, 44 USPQ2d 1149, 1153 (Fed. Cir. 1997) ("Without Emert providing rebuttal evidence,

this *prima facie* case of obviousness must stand."). This objective evidence of nonobviousness includes copying, long felt but unsolved need, failure of others, *see Graham v. John Deere Co.*, 383 U.S. 1, 17-18 [148 USPQ 459] (1966), commercial success, *see In re Huang*, 100 F.3d 135, 139-40, 40 USPQ2d 1685, 1689-90 (Fed. Cir. 1996), unexpected results created by the claimed invention, unexpected properties of the claimed invention, *see In re Mayne*, 104 F.3d 1339, 1342, 41 USPQ2d 1451, 1454 (Fed. Cir. 1997); *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), licenses showing industry respect for the invention, *see Arkie Lures, Inc. v. Gene Larew Tackle, Inc.*, 119 F.3d 953, 957, 43 USPQ2d 1294, 1297 (Fed. Cir. 1997); *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 316, 227 USPQ 766, 771 (Fed. Cir. 1985), and skepticism of skilled artisans before the invention, *see In re Dow Chem. Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1532 (Fed. Cir. 1988). The Board must consider all of the applicant's evidence. *See Oetiker*, 977 F.2d at 1445 ("An observation by the Board that the examiner made a *prima facie* case is not improper, as long as the ultimate determination of patentability is made on the entire record."); *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). The court reviews factual conclusions drawn from the evidence for clear error. Whether the evidence presented suffices to rebut the *prima facie* case is part of the ultimate conclusion of obviousness and is therefore a question of law.

When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references. *See In re Geiger*, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. C 1987). Although the suggestion to combine references may flow from the nature of the problem, *see Pro-Mo & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), the suggestion more often comes from the teachings of the pertinent references, *see In re Sernaker*, 702 F.2d 989, 994, 217 USPQ 1, 5 (Fed. Cir. 1983), or from the ordinary knowledge of those skilled in the art that certain references are of special importance in a particular field, *see Pro-Mold*, 75 F.3d at 1573 (citing *Ashland O Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297 n.24, 227 USPQ 657, 667 n.24 (Fed. Cir. 1985)). Therefore, "[w]hen determining the patentability of a claimed invention which combines two known elements, 'the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.'" *See In re Beattie*, 974 F.2d 1309, 1311-12, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992) (quoting *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984)).

III

The parties agree that the five references asserted by the examiner are in the same field of endeavor as the invention. The parties also agree that the pertinent level of skill in the art -- design of satellite communications systems -- is high. On appeal, Rouffet asserts that the examiner and the Board erred by improperly combining references to render the claimed invention obvious.

The Combination of King, Rosen, and Ruddy

The Board first affirmed the rejection of Rouffet's claims over a combination of King, Rosen, and Ruddy. King discloses a system for launching a plurality of satellites into low Earth orbits from a single launch vehicle. Rose teaches a geostationary satellite that uses a plurality of fan beams with their long axes oriented in an east-west direction to communicate with mobile and fixed terminals on the Earth.

The final, and most important, reference in this combination is Ruddy. Ruddy describes a television broadcast system that uses a series of satellites to retransmit signals sent from a ground station over a wide area. Rather than using a geostationary orbit, Ruddy teaches the use of a series of satellites in Molniya orbits. A satellite in a Molniya orbit always follows the same path through the sky when viewed from a fixed point on the ground. Viewed from the Earth, the orbital path includes a narrow, elliptical apogee loop. In order to transmit to these moving satellites from a ground station, Ruddy uses a fan beam with a long axis aligned with the long axis of the orbit's apogee loop. This alignment places the entire apogee loop within the footprint of the beam and eliminates

the need for the ground station's antenna to track the satellite's motion around the apogee loop. Ruddy further teaches orbit parameters

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and spacing of multiple satellites to ensure that a satellite is always in the loop to receive and rebroadcast signals from the Earth station.

King and Rosen together teach the use of a network of satellites in low Earth orbit. Thus, Ruddy becomes the piece of the prior art mosaic that shows, in the reading of the Board, the use of "a plurality of fan beams that are elongate in the travel direction of the satellite." Ruddy, however, is different from the claimed invention in several respects. Specifically, the application claims the projection of multiple elliptical fan-shaped footprints from the satellite to the ground. See Claim 1, *supra*, see also Application at 6, lines 9-11 ("In addition, in this system, the geometrical shape of the beams 12 is changed: instead of being circular they are now elongate ellipses."). The application's written description further teaches that the invention's fan-shaped satellite beams will minimize handovers. See *id.* at lines 11-16 ("This considerably increases call durations between handovers.").

In contrast, Ruddy teaches that a ground station may use a single fan-shaped beam to transmit to a satellite in a unique Molniya orbit. The ground station transmits a beam into which a series of satellites in Molniya orbits will successively enter. At least two differences are evident: the application teaches projection of multiple beams from a satellite to the Earth, while Ruddy teaches projection of a single beam from the Earth to satellites. Moreover to the extent Ruddy contains a teaching about handovers, its teachings focus on use of the unique Molniya orbit to ensure that a satellite always falls within the beam transmitted by the ground station.

These differences suggest some difficulty in showing a *prima facie* case of obviousness. The Board, however, specifically found that artisans of ordinary skill in this field of art would know to shift the frame of reference from a ground station following a satellite to a satellite transmitting to the ground. According to proper deference to the Board's finding of a lofty skill level for ordinary artisans in this field, this court discerns no clear error in the Board's conclusion that these differences would not preclude a finding of obviousness. While Ruddy does not expressly teach alignment of the fan beam with the apparent direction of the satellite's motion, this court perceives no clear error in the Board's determination that Ruddy would suggest such an alignment to one of skill in this art. Therefore, the Board did not err in finding that the combination of King, Rosen, and Ruddy contains all of the elements claimed in Rouffet's application.

[1] However, the Board reversibly erred in determining that one of skill in the art would have been motivated to combine these references in a manner that rendered the claimed invention obvious. Indeed, the Board did not identify any motivation to choose these references for combination. Ruddy does not specifically address handover minimization. To the extent that Ruddy at all addresses handovers due to satellite motion, it addresses this subject through the selection of orbital parameters. Ruddy does not teach the choice of a particular shape and alignment of the beam projected by the satellite. Thus Ruddy addresses the handover problem with an orbit selection, not a beam shape. The Board provides no reasons that one of ordinary skill in this art, seeking to minimize handovers due to satellite motion, would combine Ruddy with Rosen and King in a manner that would render the claimed invention obvious.

Obviousness is determined from the vantage point of a hypothetical person having ordinary skill in the art to which the patent pertains. See 35 U.S.C. Section 103(a). This legal construct is akin to the "reasonable person" used as a reference in negligence determinations. The legal construct also presumes that all prior art references in the field of the invention are available to this hypothetical skilled artisan. See *In re Carlson*, 983 F.2d 1032, 1038, 25 USPQ2d 1207, 1211 (Fed. Cir. 1993).

As this court has stated, "virtually all [inventions] are combinations of old elements." *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 698, 218 USPQ 865, 870 (Fed. Cir. 1983); see also *Richdel, Inc. v.*

Sunspool Corp., 714 F.2d 1573, 1579-80, 219 USPQ 8, 12 (Fed. Cir. 1983) ("Most, if not all, inventions are combinations and mostly of old elements."). Therefore an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be "an illogical and inappropriate process by which to determine patentability." *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570, 38 USPQ2d 1551, 1554 (Fed. Cir. 1996).

To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to

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show a motivation to combine the references that create the case of obviousness. In other words, the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.

[2] This court has identified three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. In this case, the Board relied upon none of these. Rather, just as it relied on the high level of skill in the art to overcome the differences between the claimed invention and the selected elements in the references, it relied upon the high level of skill in the art to provide the necessary motivation. The Board did not, however, explain what specific understanding or technological principle within the knowledge of one of ordinary skill in the art would have suggested the combination. Instead, the Board merely invoked the high level of skill in the art. If such a rote invocation could suffice to supply a motivation to combine, the more sophisticated scientific fields would rarely if ever, experience a patentable technical advance. Instead, in complex scientific fields, the Board could routinely identify the prior art elements in an application, invoke the lofty level of skill, and rest its case for rejection. To counter this potential weakness in the obviousness construct, the suggestion to combine requirement stands as a critical safeguard against hindsight analysis and rote application of the legal test for obviousness.

Because the Board did not explain the specific understanding or principle within the knowledge of a skilled artisan that would motivate one with no knowledge of Rouffet's invention to make the combination, this court infers that the examiner selected these references with the assistance of hindsight. This court forbids the use of hindsight in the selection of references that comprise the case of obviousness. See *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). Lacking a motivation to combine references, the Board did not show a proper *prima facie* case of obviousness. This court reverses the rejection over the combination of King, Rosen and Ruddy.

The Combination of Freeburg and Levine

Freeburg teaches a cellular radiotelephone system based on a constellation of low Earth orbit satellites that use conical beams to transmit from the satellite to both fixed and mobile Earth stations. Levine teaches an Earth-based cellular radio system that uses fan beams broadcast from antenna towers. Levine's elliptical footprints are aligned with the road grid. To increase the capacity of traditional ground-based systems through frequency reuse techniques, Levine teaches the use of antennas that broadcast signals with smaller footprints than the prior art system. Thus, Levine actually increases the number of overlap regions between cells and, hence, the number of potential handovers. Figure 1 of the Levine patent illustrates its alignment of beam footprints:



As a mobile unit (e.g., a driver using a car phone) moves through a succession of overlapping zones,

Levine uses selection algorithms to determine which of the cells is aligned with the travel direction of the mobile unit. These algorithms then select this cell for use while continually monitoring intersecting cells in the event the mobile unit changes direction.

Once again, this court notes significant differences between the teachings of the application and the Levine-Freeburg combination. The critical Levine reference again involves a beam from an Earth station without any reference to the "travel direction of [a] satellite." Moreover, Levine actually multiplies the number of potential handovers and then uses software to sort out the necessary handovers from the unnecessary. However, the Board explains the reasons that one possessing the lofty skills characteristic of this field would know to account for the differences between the claimed invention and the prior art combination. This court discerns no clear error in the reliance on the considerable skills in this field.

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[3] This court does, however, discern reversible error in the Board's identification of a motivation to combine Levine and Freeburg. In determining that one of skill in the art would have had motivation to combine Levine and Freeburg, the Board noted that "[t]he level of skill in the art is very high." As noted before, this observation alone cannot supply the required suggestion to combine these references. The Board posits that the high level of skill in the art overcomes the absence of any actual suggestion that one could select part of the teachings of Levine for combination with the satellite system disclosed by Freeburg.

As noted above, the suggestion to combine requirement is a safeguard against the use of hindsight combinations negate patentability. While the skill level is a component of the inquiry for a suggestion to combine, a lofty level of skill alone does not suffice to supply a motivation to combine. Otherwise a high level of ordinary skill in an art would almost always preclude patentable inventions. As this court has often noted, invention itself is the process of combining prior art in a nonobvious manner. *See, e.g., Richdel*, 714 F.2d at 1579; *Environmen Designs*, 713 F.2d at 698. Therefore, even when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination. *Cf. Gechter Davidson*, 116 F.3d 1454, 43 USPQ2d 1030 (Fed. Cir. 1997) (explaining that the Board's opinion must describe the basis for its decision). In other words, the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious.

The Board's naked invocation of skill in the art to supply a suggestion to combine the references cited in this case is therefore clearly erroneous. Absent any proper motivation to combine part of Levine's teachings with Freeburg's satellite system, the rejection of Rouffet's claim over these references was improper and is reversed.

IV

The Board reversibly erred in determining that there was a motivation to combine either the teachings of King, Rosen, and Ruddy or of Freeburg and Levine in a manner that would render the claimed invention obvious. Because this predicate was missing in each case, the Board did not properly show that these references render the claimed invention obvious. Therefore this court reverses the Board's decision upholding the rejection of Rouffet's claims. In light of this disposition, Rouffet's pending motion to remand the case to the Board for further consideration is denied as moot.

COSTS

Each party shall bear its own costs.

REVERSED .

- End of Case -

FULL TEXT OF CASES (USPQ2D)

All Other Cases

In re Dembiczak (CA FC) 50 USPQ2d 1614 In re Dembiczak

**U.S. Court of Appeals Federal Circuit
50 USPQ2d 1614**

**Decided April 28, 1999
No. 98-1498**

Headnotes

PATENTS

1. Patentability/Validity -- Obviousness -- Combining references (§ 115.0905)

Decision rejecting claims in utility application as obvious over combination of prior art references must be reversed, since obviousness analysis in decision is limited to discussion of ways that multiple references can be combined to read on claimed invention, but does not particularly identify any suggestion, teaching, or motivation to combine references, and does not include specific or inferential findings concerning identification of relevant art, level of ordinary skill in art, nature of problem to be solved, or any other factual findings that might support proper obviousness analysis.

2. Patentability/Validity -- Anticipation -- Double patenting (§ 115.0708)

Obviousness-type double patenting may be found between design and utility patents in rare cases, but such rejection is appropriate only if claims of two patents cross-read, meaning that subject matter of claims of patent sought to be invalidated would have been obvious from subject matter of claims of other patent, and vice-versa.

3. Patentability/Validity -- Anticipation -- Double patenting (§ 115.0708)

Applicants' design patents for bag with jack-o'-lantern face would not have been obvious variants of their pending utility claims directed to trash bag decorated to resemble Halloween pumpkin when filled with trash or leaves, since textual description of "facial indicia" on bag found in claims of utility patent application cannot constitute design reference that is "basically the same as" specific designs claimed in applicants' patentably distinct design patents.

Case History and Disposition:

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Appeal from the U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences.

Application of Anita Dembiczak and Benson Zinbarg for utility patent (application serial no. 08/427,732). From decision sustaining rejections of claims in application, applicants appeal. Reversed.

Attorneys:

David P. Gordon and Thomas A. Gallagher, Stamford, Conn., for appellants.

John M. Whealan, associate solicitor, Albin F. Drost, acting solicitor, and David R. Nicholson, associate solicitor, Office of the Solicitor, Arlington, Va., for appellee.

Judge:

Before Mayer, chief judge, and Michel and Clevenger, circuit judges.

Opinion Text

Opinion By:

Clevenger, J.

Anita Dembiczak and Benson Zinbarg appeal the rejection, upheld by the Board of Patent Appeals and Interferences, of all pending claims in their Application No. 08/427,732. *See Ex Parte Dembiczak*, No. 96-2648, slip op. at 43 (May 14, 1998). Because the Board erred in sustaining rejections of the pending claims as obvious under 35 U.S.C. Section 103(a) (Supp. 1998), and for obviousness-type double patenting, we reverse.

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I

The invention at issue in this case is, generally speaking, a large trash bag made of orange plastic and decorated with lines and facial features, allowing the bag, when filled with trash or leaves, to resemble a Halloween-style pumpkin, or jack-o'-lantern. As the inventors, Anita Dembiczak and Benson Zinbarg (collectively, "Dembiczak" note, the invention solves the long-standing problem of unsightly trash bags placed on the curbs of America, and by fortuitous happenstance, allows users to express their whimsical or festive nature while properly storing garbage, leaves, or other household debris awaiting collection. Embodiments of the invention--sold under a variety of names, including Giant Stuff-A-Pumpkin(trade mark), Funkins, Jack Sak(trade mark), and Bag-O-Fun(trade mark)--have undisputedly been well-received by consumers, who bought more than seven million units in 1990 alone. Indeed, in 1990, the popularity of the pumpkin bags engendered a rash of thefts around Houston, Texas, leading some owners to resort to preventative measures, such as greasing the bags with petroleum jelly and tying them to trees. See R. Piller, "Halloween Hopes Die on the Vine," *Hous. Chron.*, Oct. 19, 1990, at 13A.

The road to profits has proved much easier than the path to patentability, however. In July 1989, Dembiczak filed a utility patent application generally directed to the pumpkin bags. In a February 1992 appeal, the Board of Patent Appeals and Interferences ("the Board") reversed the Examiner's rejection, but entered new grounds for rejection. Dembiczak elected to continue prosecution, filing a continuation application to address the new grounds for rejection. Thereafter, the invention made a second appearance before the Board, in April 1993, when the Board both sustained the Examiner's rejection and again entered new grounds for rejection. Again, a continuation application was filed (the instant application). And again the Examiner's rejection was appealed to the Board, which sustained the rejection in a May 14, 1998, decision. See *Dembiczak*, slip op. at 43.

A

The patent application at issue includes claims directed to various embodiments of the pumpkin bag. Claims 37, 49, 51, 52, 58 through 64, 66 through 69, and 72 through 81 are at issue in this appeal. Though the claims vary, independent claim 74 is perhaps most representative:

74. A decorative bag for use by a user with trash filling material, the bag simulating the general outer appearance of an outer surface of a pumpkin having facial indicia thereon, comprising:
a flexible waterproof plastic trash or leaf bag having
an outer surface which is premanufactured orange in color for the user to simulate the general appearance of the outer skin of a pumpkin, and having
facial indicia including at least two of an eye, a nose and a mouth on the orange color outer surface for forming a face pattern on said orange color outer surface to simulate the general outer appearance of a decorative pumpkin with a face thereon,
said trash or leaf bag having first and second opposite ends, at least said second end having an opening extending substantially across the full width of said trash or leaf bag for receiving the trash filling material,
wherein when said trash or leaf bag is filled with trash filling material and closed, said trash or leaf bag takes the form and general appearance of a pumpkin with a face thereon.

All of the independent claims on appeal, namely 37, 52, 72, and 74, contain limitations that the bag must be "premanufactured orange in color," have "facial indicia," have openings suitable for filling with trash material, and that when filled, the bag must have a generally rounded appearance, like a pumpkin. Independent claims 37, 52, and 72 add the limitation that the bag's height must be at least 36 inches. Claim 72 requires that the bag be made of "weatherproof material," and claim 74, as shown above, requires that the bag be "waterproof." Claim 52 recites a "method of assembling" a bag with the general characteristics of apparatus claim 37.

B

The prior art cited by the Board includes:

- (1) pages 24-25 of a book entitled "A Handbook for Teachers of Elementary Art," by Holiday Art Activities ("Holiday"), describing how to teach children to make a "Crepe Paper Jack-O-Lantern" out of a strip of orange crepe paper, construction paper cut-outs in the shape of facial features, and "wadded newspapers" as filling;
- (2) page 73 of a book entitled "The Everything Book for Teachers of Young Children,"

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- by Martha Shapiro and Valerie Indenbaum ("Shapiro"), describing a method of making a "paper bag pumpkin" stuffing a bag with newspapers, painting it orange, and then painting on facial features with black paint;
- (3) U.S. Patent No. 3,349,991 to Leonard Kessler, entitled "Flexible Container" ("Kessler"), describing a bag apparatus wherein the bag closure is accomplished by the use of folds or gussets in the bag material;
- (4) U.S. Patent No. Des. 310,023, issued August 21, 1990 to Dembiczak ("Dembiczak '023"), a design patent depicting a bag with a jack-o'-lantern face;
- (5) U.S. Patent No. Des. 317,254, issued June 4, 1991 to Dembiczak ("Dembiczak '254"), a design patent depicting a bag with a jack-o'-lantern face; and,
- (6) Prior art "conventional" plastic lawn or trash bags ("the conventional trash bags").

Using this art, the Board affirmed the Examiner's final rejection of all the independent claims (37, 52, 72, 74) under 35 U.S.C. Section 103, holding that they would have been obvious in light of the conventional trash bags view of the Holiday and Shapiro references. The Board determined that, in its view of the prior art, "the only difference between the invention presently defined in the independent claims on appeal and the orange plastic trash bags of the prior art and the use of such bags resides in the application of the facial indicia to the outer surface of the bag." *Dembiczak*, slip op. at 18. The Board further held that the missing facial indicia elements were provided by the Holiday and Shapiro references' description of painting jack-o'-lantern faces on paper bags. *See id.* at 18-19. Dependent claims 49 and 79, which include a "gussets" limitation, were considered obvious under similar reasoning, except that the references cited against them included Kessler. *See id.* at 7. The Board also affirmed the Examiner's obviousness-type double patenting rejection of all the independent claim in light of the two Dembiczak design patents ('023 and '254) and Holiday. *See id.* at 12. The Board held that the design patents depict a generally rounded bag with jack-o'-lantern facial indicia, and that the Holiday reference supplies the missing limitations, such as the "thin, flexible material" of manufacture, the orange color, the initially-open upper end, and the trash filling material. The Board also stated that the various limitations of the dependent claims-- e.g., color, the inclusion of leaves as stuffing, and the dimensions--would all be obvious variations of the depictions in the Dembiczak design patents. *See id.* at 8-9. In addition, using a two-way test for obviousness-type double patenting, the Board held that the claims of the Dembiczak design patents "do not exclude" the additional structural limitations of the pending utility claims, and thus the design patents were mere obvious variations of the subject matter disclosed in the utility claims. *See id.* at 11. The Board further upheld, on similar grounds and with the inclusion of the Kessler reference, the obviousness-type double patenting rejection of dependent claim 49. *See id.* at 12.

This appeal followed, vesting this court with jurisdiction pursuant to 28 U.S.C. Section 1295(a)(4)(A) (1994).

II

A claimed invention is unpatentable if the differences between it and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. Section 103(a) (Supp. 1998); *see Graham v. John Deere Co.*, 383 U.S. 1, 14, 148 USPQ 45 465 (1966). The ultimate determination of whether an invention is or is not obvious is a legal conclusion based on underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of

nonobviousness. See *Graham*, 383 U.S. at 17-18, 148 USPQ at 467; *Miles Labs, Inc., Inc. v. Shandon Inc* 997 F.2d 870, 877, 27 USPQ2d 1123, 1128 (Fed. Cir. 1993). We therefore review the ultimate determination of obviousness without deference to the Board, while examining any factual findings for clear error. See, e.g. *In re Zurko*, 142 F.3d 1447, 1459, 46 USPQ2d 1691, 1700 (Fed. Cir.) (en banc), *cert. granted*, 119 S. Ct. 4 (1998).

A

Our analysis begins in the text of section 103 quoted above, with the phrase "at the time the invention was made For it is this phrase that guards against entry into the "tempting but forbidden zone of hindsight," see *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 873, 228 USPQ 90, 98 (Fed. Cir. 1985), *overruled on other grounds by Nobelpharma AB v. Implant Innovations, Inc.*, 141 F.3d 1059, 46 USPQ2d 1097 (Fed. Cir. 1998),

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when analyzing the patentability of claims pursuant to that section. Measuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. See, e.g., *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983). Close adherence to this methodology is especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which on the inventor taught is used against its teacher." *Id.*

Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. See, e.g., *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998) (describing "teaching or suggestion or motivation [to combine]" as an "essential evidentiary component of an obviousness holding"); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) ("the Board must identify specifically . . . the reasons one of ordinary skill in the art would have been motivated to select the references and combine them"); *In re Fritch*, 972 F.2d 126 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (examiner can satisfy burden of obviousness in light of combination "only by showing some objective teaching [leading to the combination]"); *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) (evidence of teaching or suggestion "essential" to avoid hindsight); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297, 227 USPQ 657, 667 (Fed. Cir. 1985) (district court's conclusion of obviousness was error when it "did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination"). See also *Graham* 383 U.S. at 18, 148 USPQ at 467 ("strict observance" of factual predicates to obviousness conclusion required). Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight. See, e.g., *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed. Cir. 1985) ("The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time."). In this case, the Board fell into the hindsight trap.

We have noted that evidence of a suggestion, teaching, or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, see *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), *Para-Ordinance Mfg. v. SGS Imports Intern., Inc.*, 73 F.3d 1085, 1088 37 USPQ2d 1237, 1240 (Fed. Cir. 1995), although "the suggestion more often comes from the teachings of the pertinent references," *Rouffet*, 149 F.3d at 1355, 47 USPQ2d at 1456. The range of sources available, however

does not diminish the requirement for actual evidence. That is, the showing must be clear and particular. *See, e.g., C.R. Bard*, 157 F.3d at 1352, 48 USPQ2d at 1232. Broad conclusory statements regarding the teaching of multiple references, standing alone, are not "evidence." *E.g., McElmurry v. Arkansas Power & Light Co.* 995 F.2d 1576, 1578, 27 USPQ2d 1129, 1131 (Fed. Cir. 1993) ("Mere denials and conclusory statements, however, are not sufficient to establish a genuine issue of material fact."); *In re Sichert*, 566 F.2d 1154, 1164 196 USPQ 209, 217 (CCPA 1977) ("The examiner's conclusory statement that the specification does not teach the best mode of using the invention is unaccompanied by evidence or reasoning and is entirely inadequate to support the rejection."). In addition to demonstrating the propriety of an obviousness analysis, particular factual findings regarding the suggestion, teaching, or motivation to combine serve a number of important purposes, including: (1) clear explication of the position adopted by the Examiner and the Board; (2) identification of the factual disputes if any, between the applicant and the Board; and (3) facilitation of review on appeal. Here, however, the Board did not make particular findings regarding the locus of the suggestion, teaching, or motivation to combine the prior art references.

[1] All the obviousness rejections affirmed by the Board resulted from a combination of prior art references, *e.g., the conventional trash or yard bags, and the Holiday and Shapiro publications teaching the construction of decorated paper bags. See Dembiczak*, slip op. at 6-7. To justify this combination, the Board simply stated that "the Holiday and Shapiro references would have

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suggested the application of . . . facial indicia to the prior art plastic trash bags." *Id.* at 18-19. However, rather than pointing to specific information in Holiday or Shapiro that suggest the combination with the conventional bags, the Board instead described in detail the similarities between the Holiday and Shapiro references and the claimed invention, noting that one reference or the other--in combination with each other and the conventional trash bags--described all of the limitations of the pending claims. *See id.* at 18-28. Nowhere does the Board particularly identify any suggestion, teaching, or motivation to combine the children's art references (Holiday and Shapiro) with the conventional trash or lawn bag references, nor does the Board make specific--or even inferential--findings concerning the identification of the relevant art, the level of ordinary skill in the art, the nature of the problem to be solved, or any other factual findings that might serve to support a proper obviousness analysis. *See, e.g., Pro-Mold & Tool*, 75 F.3d at 1573, 37 USPQ2d at 1630.

To the contrary, the obviousness analysis in the Board's decision is limited to a discussion of the ways that the multiple prior art references can be combined to read on the claimed invention. For example, the Board finds that the Holiday bag reference depicts a "premanufactured orange" bag material, *see Dembiczak*, slip op. at 21, finds that Shapiro teaches the use of paper bags in various sizes, including "large", *see id.* at 22-23, and concludes that the substitution of orange plastic for the crepe paper of Holiday and the paper bags of Shapiro would be an obvious design choice, *see id.* at 24. Yet this reference-by-reference, limitation-by-limitation analysis fails to demonstrate how the Holiday and Shapiro references teach or suggest their combination with the conventional trash or lawn bags to yield the claimed invention. *See Rouffet*, 149 F.3d at 1357, 47 USPQ2d at 1459 (noting Board's failure to explain, when analyzing the prior art, "what specific understanding or technical principle . . . would have suggested the combination"). Because we do not discern any finding by the Board that there was a suggestion, teaching, or motivation to combine the prior art references cited against the pending claims, the Board's conclusion of obviousness, as a matter of law, cannot stand. *See C.R. Bard*, 157 F.3d at 1352, 48 USPQ2d at 1232; *Rouffet*, 149 F.3d at 1359, 47 USPQ2d at 1459; *Fritch*, 972 F.2d at 1265, 23 USPQ2d at 1783; *Fine*, 837 F.2d at 1075, 5 USPQ2d at 1600; *Ashland Oil*, 776 F.2d at 297, 227 USPQ at 667.

B

The Commissioner of Patents and Trademarks ("Commissioner") attempts to justify the Board's decision on

grounds different from that relied upon by the Board, arguing that one of ordinary skill in the art would have been motivated to combine the references. Of course, in order to do so, the Commissioner must do what the Board did not do below: make specific findings of fact regarding the level of skill in the art ("a designer and manufacturer of trash and leaf bags, particularly one specializing in the ornamental and graphic design of such bags"), *Resp't B* . at 14, the relationship between the fields of conventional trash bags and children's crafts, respectively ("[t]he artisan would also have been well aware of the ancillary, corollary, and atypical uses of 'trash' bags such as their application in hobby and art projects"), *Resp't Br* . at 15, and the particular features of the prior art references that would motivate one of ordinary skill in a particular art to select elements disclosed in references from a wholly different field ("a designer and manufacturer of trash and leaf bags would have recognized the paper bag Shapiro to be a trash bag and therefore would have been motivated to combine it with the admitted prior art plus trash and leaf bags to arrive at the claimed invention"), *Resp't Br* . at 15. The Commissioner also appears to cite additional references in support of his obviousness analysis, noting that at least two design patents (in the record but not cited against the presently pending claims) teach the placement of "graphical information, including text designs, and even facial indicia, to colored bags." *Resp't Br* . at 16. This new analysis, apparently cut from whole cloth in view of appeal, does little more than highlight the shortcomings of the decision below, and we decline to consider it. See, e.g., *In re Robertson*, 169 F.3d 743, 49 USPQ2d 1949, 1951 (Fed. Cir. 1999) ("We decline to consider [the Commissioner's] newly-minted theory as an alternative ground for upholding the agency decision."); *In re Soni*, 54 F.3d 746, 751, 34 USPQ2d 1684, 1688 (Fed. Cir. 1995); *In re Hounsfield*, 699 F.2d 1320, 1324, 216 USPQ 1045, 1049 (Fed. Cir. 1983) (rejecting an "attempt [] by the Commissioner 'to apply a new rationale to support the rejection.'"); see also 35 U.S.C. Section 144 (1994) (an appeal to the Federal Circuit "is taken on the record before The Patent and Trademark Office"). Because the Board has not established a *prima facie* case of obviousness, see *In re Bell*, 991 F.2d 781,

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783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) ("The PTO bears the burden of establishing a case of *prima facie* obviousness."), we therefore reverse the obviousness rejections, and have no need to address the parties' arguments with respect to secondary factors.

III

Dembiczak also asks this court to reverse the Board's rejection of the pending claims for obviousness-type double patenting, which is a judicially-created doctrine that seeks to prevent the applicant from expanding the grant of the patent right beyond the limits prescribed in Title 35. See, e.g., *In re Braat*, 937 F.2d 589, 592, 19 USPQ2d 1289, 1291-92 (Fed. Cir. 1991); *In re Longi*, 759 F.2d 887, 892, 225 USPQ 645, 648 (Fed. Cir. 1985). See also 35 U.S.C. Section 154(a)(2) (Supp. 1998) (discussing patent term). The doctrine prohibits claims in a second patent which define "merely an obvious variation" of an invention claimed by the same inventor in an earlier patent. *Braat*, 937 F.2d at 592, 19 USPQ2d at 1292 (quoting *In re Vogel*, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970)). Thus, unless a claim sought in the later patent is patentably distinct from the claims in an earlier patent, the claim must be rejected. See *In re Goodman*, 11 F.3d 1046, 1052, 29 USPQ2d 2010, 2015 (Fed. Cir. 1993); *Vogel*, 422 F.2d at 441, 164 USPQ at 622. This question is one of law, which we review *de novo*. See *Goodman*, 11 F.3d at 1052, 29 USPQ2d at 2015; *Texas Instruments Inc. v. United States Int'l Trade Comm'n*, 988 F.2d 1165, 1179, 26 USPQ2d 1018, 1029 (Fed. Cir. 1993).

A

[2] The law provides that, in some very rare cases, obvious-type double patenting may be found between design and utility patents. See *Carman Indus., Inc. v. Wahl*, 724 F.2d 932, 939-40, 220 USPQ 481, 487 (Fed. Cir. 1983) (noting that, while theoretically possible, "[d]ouble patenting is rare in the context of utility versus design

patents"); *In re Thorington* , 418 F.2d 528, 536-37, 163 USPQ 644, 650 (CCPA 1969) (Double patenting between a design and utility patent is possible "if the features producing the novel aesthetic effect of a design patent or application are the same as those recited in the claims of a utility patent or application as producing a novel structure."); *In re Phelan* , 205 F.2d 183, 98 USPQ 156 (CCPA 1953); *In re Barber* , 81 F.2d 231, 2 USPQ 187 (CCPA 1936); *In re Hargraves* , 53 F.2d 900, 11 USPQ 240 (CCPA 1931). In these cases, a "two-way" test is applicable. See *Carman* , 724 F.2d at 940, 220 USPQ at 487. Under this test, the obviousness-type double patenting rejection is appropriate only if the claims of the two patents cross-read, meaning that "the test is whether the subject matter of the claims of the patent sought to be invalidated would have been obvious from the subject matter of the claims of the other patent, and vice versa." *Id.* , 220 USPQ at 487. See also *Braat* , 937 F.2d at 593, 19 USPQ2d at 1292 (explaining two-way test).

B

In making its double patenting rejection, the Board concluded that all but one of the pending claims of Dembiczak's utility application would have been merely an obvious variation of the claims of the earlier-issued design patents--the Dembiczak '023 and '254 references--in light of the Holiday reference. The remaining claim dependent claim 49, was judged obvious in light of the combination of the Dembiczak design patents, Holiday, and the Kessler reference.

[3] Acknowledging that the two-way test was required by *Carman* , 724 F.2d at 940, 220 USPQ at 487, the Board concluded that "the design claimed in each of appellants' design patents does not exclude the features pertaining to the construction and color of the bag, the use of a plastic material for making the bag, the size or thickness of the bag . . . or the use of various types of filling material The particular details of the facial indicia would have been a matter of design choice as evidenced by the Holiday handbook," and that therefore, in view of Holiday, the claims of the design patents were obvious variants of the pending utility patent claims. See *Dembiczak* , slip op. at 11. We disagree. In order for a design to be unpatentable because of obviousness, there must first be a basic design reference in the prior art, the design characteristics of which are "basically the same the claimed design." *In re Borden* , 90 F.3d 1570, 1574, 39 USPQ2d 1524, 1526 (Fed. Cir. 1996); *In re Ros* , 673 F.2d 388, 391, 213 USPQ 347, 350 (CCPA 1982). The phrase "having facial indicia thereon" found in the claims of the pending utility application is not a design reference that is "basically the same as the claimed design." *Borden* , 90 F.3d at 1574, 39 USPQ2d at 1526. In fact, it describes precious little with respect to design characteristics.

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The Board's suggestion that the design details were simply "a matter of design choice" evinces a misapprehension of the subject matter of design patents. *E.g.* , *Carman* , 724 F.2d at 939 n.13, 220 USPQ at 486 n.13 ("Utility patents afford protection for the mechanical structure and function of an invention whereas design patent protection concerns the ornamental or aesthetic features of a design.") Indeed, we note that the two design patents at issue here--the Dembiczak '023 and '254 patents--were considered nonobvious over each other, and were even the subject of a restriction requirement. See 35 U.S.C. Section 121 (1994) ("If two or more independent and distinct inventions are claimed in one application, the Commissioner may require the application to be restricted to one of the inventions."); 37 C.F.R. Section 1.142. The position adopted by the Board--that a textual description of facial indicia found in the claims of the utility patent application makes obvious the specific designs claimed the (patentably distinct) Dembiczak design patents--would presumably render obvious, or even anticipate, all design patents where a face was depicted on a bag. But this, of course, is not the law; the textual description cannot be said to be a reference "basically the same as the claimed design," of the design patents at issue here. *Borden* , 90 F.3d at 1574, 39 USPQ2d at 1526 (internal quotation marks omitted). The Board's conclusion of obviousness is incorrect.

Because we find that the Board erred in concluding that the design patents were obvious variants of the pending utility claims, we need not address the other prong of the two-way double patenting test--whether the pending utility claims are obvious variations of the subject matter claimed in the design patents. See *Carman*, 724 F.2d at 939, 220 USPQ at 487 (both prongs of the two-way test required for obviousness-type double patenting). The double patenting rejections are reversed.

IV

Because there is no evidence in the record of a suggestion, teaching, or motivation to combine the prior art references asserted against the pending claims, the obviousness rejections are reversed. In addition, because the Board misapprehended the test for obviousness-type double patenting, and because the pending utility claims do not render obvious the design patents, the double patenting rejections are also reversed.

REVERSED .

- End of Case -